CLAIMS

What is claimed is:

1. In a cellular network in which a mobile station communicates with base stations through a wireless repeater, a method comprising:

monitoring a load of the base stations; and

based on the load of the base stations, the wireless repeater repeating wireless signals to one of the base stations.

2. The method of claim 1, wherein repeating wireless signals to one of the base stations comprises repeating wireless signals to a base station having surplus capacity.

3. The method of claim 1, wherein monitoring the load of the base stations comprises determining carrier-to-cochannel interference ratios of signals received from the base stations.

4. The method of claim 3, wherein repeating wireless signals to one of the base stations comprises repeating wireless signals to a base station having a high carrier-to-cochannel interference ratio.

5. The method of claim 4, further comprising continually monitoring the load of the base stations.

6. The method of claim 5, further comprising upon identifying a second base station having a higher carrier-to-cochannel interference ratio, performing a handoff of the wireless signals to the second base station.

7. A method for dynamically directing a wireless repeater, the method comprising:

the wireless repeater determining carrier-to-cochannel interference ratios of received wireless signals; and

based on the carrier-to-cochannel interference ratios, directing the wireless repeater to radiate amplified wireless signals in a direction of a given base station.

8. The method of claim 7, further comprising receiving the wireless signals by directing an antenna to incrementally sweep its coverage area across a given area.

9. The method of claim 7, further comprising incrementally receiving the wireless signals from a plurality of directional antennas, where each directional antenna is operable to receive wireless signals from a given coverage area.

10. The method of claim 7, further comprising for each of the received wireless signals, storing in data storage a coverage area identifier corresponding to a coverage area from which the wireless signals were received.

11. The method of claim 7, further comprising determining a PN-offset of each received wireless signal.

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12. The method of claim 7, wherein directing the wireless repeater to radiate amplified wireless signals in a direction of a given base station comprises directing the wireless repeater to radiate the amplified wireless signals in a direction corresponding to a strongest carrier-to-cochannel interference ratio.

13. The method of claim 7, wherein the given base station is a base station that carries a least amount of traffic at a given point in time.

14. The method of claim 7, further comprising radiating the amplified signals in a direction of a given sector of the given base station.

15. The method of claim 14, further comprising only repeating signals having a PN-offset of the given sector.

16. In a wireless repeater operable to radiate in a number of directions so as to provide a number of coverage areas, a method comprising:

incrementally adjusting the wireless repeater to receive wireless signals within the number of coverage areas;

determining characteristics of the wireless signals; and

based on the characteristics, directing the wireless repeater to radiate amplified wireless signals to one of the number of coverage areas.

17. The method of claim 16, wherein incrementally adjusting the wireless repeater comprises directing a phased array antenna to sweep its coverage area over the number of coverage areas.

18. The method of claim 16, wherein incrementally adjusting the wireless repeater comprises rotating a directional antenna to sweep its coverage area over the number of coverage areas.

19. The method of claim 16, wherein the wireless repeater includes a plurality of antennas each operable to receive wireless signals from a given coverage area, and wherein incrementally adjusting the wireless repeater comprises selecting antennas from the plurality of antennas to receive the wireless signals.

20. The method of claim 16, further comprising for each of the wireless signals, storing in data storage a coverage area identifier corresponding to a coverage area from which the wireless signals were received.

21. The method of claim 20, wherein determining characteristics of the wireless signals comprises determining characteristics selected from the group consisting of a PN-offset of each wireless signal and a signal-to-noise ratio for each PN-offset.

22. The method of claim 21, wherein directing the wireless repeater comprises directing the wireless repeater to radiate the amplified wireless signals to a given coverage area

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having a coverage area identifier corresponding to a coverage area having the highest signal-to-noise ratio.

23. A wireless repeater comprising:

a donor antenna that is operable to communicate with a plurality of base stations;

a mobile station modem that receives wireless signals from the donor antenna and identifies characteristics of the wireless signals; and

a processor operable to record in data storage the characteristics of the wireless signals and based on the characteristics, to direct the donor antenna to radiate amplified wireless signals to a given base station.

24. The wireless repeater of claim 23, wherein the characteristics are selected from the group consisting of PN-offsets of the wireless signals and signal to noise ratios (E_C/I_O) for each PN offset.

25. The wireless repeater of claim 23, wherein the processor causes the donor antenna to sweep over coverage areas of the plurality of base stations through increments.

26. The wireless repeater of claim 25, wherein at each increment, the donor antenna receives wireless signals and passes the wireless signals to the processor which records in the data storage the increment at which each wireless signal was received.

27. The wireless repeater of claim 26, wherein the mobile station modem includes a rake receiver that identifies PN-offsets in the wireless signals.

28. The wireless repeater of claim 27, wherein the processor records in the data storage the PN offsets and signal-to-noise ratios of the wireless signals at each increment.

29. The wireless repeater of claim 28, wherein the processor instructs the donor antenna to radiate the amplified wireless signals to a base station that corresponds to an increment where the mobile station modem detected a highest signal-to-noise ratio.

30. The wireless repeater of claim 23, wherein the donor antenna is an antenna selected from the group consisting of an omni-directional antenna, a directional antenna, and a phased array antenna.

31. The wireless repeater of claim 23, wherein the donor antenna is a phased array antenna, and wherein the processor records the phase of the phased array antenna at which each wireless signal is received, and based on the characteristics of the wireless signals, directs the phased array antenna to radiate the amplified wireless signals at a given phase.

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